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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,177	12/05/2000	Win Vanderbauwhede	Q61789	6597

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EXAMINER

TRAN, CON P

ART UNIT PAPER NUMBER

2644

DATE MAILED: 02/09/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/729,177

Applicant(s)

VANDERBAUWHEDE ET AL

Examiner

Con P. Tran

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 17 October 1930.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 recites the limitation "said hybrid" in line 3. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, and 6-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. U.S. Patent 6,281,829 in view of Hewinson et al. U.S. Patent 6,288,883 and further in view of Treiber U.S. Patent 4,386,430.

Regarding **claims 1 and 6**, Amrany et al. teaches a method for echo cancelling (see Fig. 2, and respective portions of the specification) in a communication line system (see col. 4, lines 49-53), the method comprising: elements (see col. 4, lines 49-67) of a hybrid (103; see col. 4, lines 32-43) which forms part of the analog front-end (see col. 3,

lines 8-10) of the communications line system, whereby the values of the tunable passive elements (resistors; see col. 6, lines 24-27) are controlled by digital control means (104).

However, Amrany et al. does not explicitly show echo cancelling performed by method of adapting tunable passive elements. Adaptive echo cancelling is well known in the art of echo cancellation.

Hewinson et al. teaches (see Fig. 1, 2 and respective portions of the specification) an adaptive cancellation bridge circuit comprising transconductance cells providing resistive, capacitive and inductive components in a bridge network (see col. 1, lines 24-26) in order to improve performance and/or reduced costs, due to simplification of the transmit and receive filter requirements (see col. 1, lines 42-43).

However, Amrany et al., Hewinson et al. in combination does not explicitly show measuring the transmission return loss gain in said hybrid and whereby to reduce transmission return loss gain. Treiber teaches such in col. 4, lines 11-37 for purpose of minimizing the unwanted return signal from transmission path.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was filing incorporate bridge circuit of Treiber teaching with Amrany Hewinson in combination for purpose of minimizing the unwanted return signal from transmission path, as suggested by Treiber in col. 3, lines 66-67.

Regarding **claims 2 and 7**, Hewinson et al. further teaches wherein a scaling factor is used for adapting the tunable passive elements (col. 2, lines 30-45).

Regarding **claim 3**, Amrany et al. in view of Hewinson and further in view of Treiber teaches a method according to claim 1, Amrany further teaches wherein when the transmission return loss gain differs from zero, the digital control means goes through a loop of adaptation of the tunable passive elements until a zero value of the transmission return loss gain is obtained (col. 4, lines 18-32).

5. **Claims 4-5, 8, and 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. U.S. Patent 6,281,829 in view of Hewinson et al. U.S. Patent 6,288,883, in view of Treiber U.S. Patent 4,386,430, and further in view of Kakuishi U.S. Patent 5,287,406 (cited by applicants).

Regarding **claims 4, and 14-15** Amrany et al. in view of Hewinson et al., in view of Treiber teaches a method according to claim 3. Amrany et al. further teaches the CO 5 (Fig. 1) includes a line card (i.e. integrated circuit) that includes a DSP 11 (microprocessor), an AFE which is separate from a line driver and a hybrid. Hewinson et al. further teaches adaptive cancellation bridge ACB having transconductance cells TC1, TC2 and TC3 (FIG. 2) in one arm of a bridge network, while another arm is represented by a line L. The other two arms comprise resistors R1 and R2. Each cell is a variable-gain current amplifier, which is arranged to produce variable impedances (col. 1, line 60 – col. 2, line 2). Treiber further teaches the net admittance seen by the line at terminals 102 and 103 remains equal to  $Y_L$  (co.7, lines 2-17).

However, Amrany et al. in view of Hewinson et al., in view of Treiber does not explicitly show the tunable passive impedances being tuned such that the value of the tunable balance impedance approximates as close as possible the scaled impedance value of the parallel circuit of the line termination resistance in the transmission paths of the hybrid circuit, and the line impedance.

Kakuishi teaches the impedance  $Z$  obtained by viewing the two-wire line depends on the length and type of cable, a plurality of impedance  $Z_x$  elements are selectively used. The most typical impedance  $Z_x$  is equal to  $Z'/2$ , in which  $Z'$  is a standard terminating impedance of a system (col. 2, line 48 – col. 3, line 38) in order provide a simple and less expensive hybrid circuit (col. 4, line 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was filing to include within the by Amrany et al. ,Hewinson et al. and Treiber in combination such circuit as taught by Kakuishi for purpose of providing a simple and less expensive hybrid circuit, as suggested by Kakuishi in column 4, lines 1-2.

Regarding **claim 5**, Kakuishi further teaches the hybrid comprises a current to voltage converter (99, Fig. 4), wherein the feedback impedance of which being adapted so as to be equal to the tunable balance impedance (90).

Regarding **claim 8**, Amrany et al. in view of Hewinson et al. teaches a method according to claim 6, However, Amrany et al. in view of Hewinson et al. does not

explicitly show the hybrid comprises a hybrid bridge and a current to voltage converter. Kakuishi further teaches device according to claim 6, characterized in that the hybrid comprises a current to voltage converter (99, Fig. 4).

6. **Claims 9-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. U.S. Patent 6,281,829 in view of Hewinson et al. U.S. Patent 6,288,883, in view of Treiber U.S. Patent 4,386,430, further in view of Kakuishi U.S. Patent 5,287,406 (cited by applicants), and in view of McGinn (5,333,192).

Regarding **claims 9-12**, Amrany et al. in view of Hewinson et al. in view of Treiber further in view of Kakuishi teaches a method according to claim 8. However, Amrany et al., Hewinson et al., Treiber and Kakuishi in combination does not show two branches each comprising a tunable balance impedance in series with a second tunable impedance.

McGinn teaches a resistor network having two branches 14a, 14b, 15a, and 15b (Fig. 2, col. 5, lines 22-35) for the purpose of coupling communication signals between the communication line and a telephone facility via a hybrid circuit (col. 3, lines 15-16).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was filing to include within the by Amrany et al., Kakuishi, Treiber and Hewinson et al. in combination such circuit as taught by McGinn since such modification would have provided coupling communication signals between the communication line

and a telephone facility via a hybrid circuit, as suggested by McGinn in column 3, lines 15-16.

Amrany et al. further teaches the CO 5 (Fig. 1) includes a line card (i.e. integrated circuit) that includes a DSP 11 (microprocessor), an AFE which is separate from a line driver and a hybrid (14). Hewinson et al. further teaches adaptive cancellation bridge ACB having transconductance cells TC1, TC2 and TC3 (FIG. 2) in one arm of a bridge network, while another arm is represented by a line L. The other two arms comprise resistors R1 and R2. Each cell is a variable-gain current amplifier, which is arranged to produce variable impedances, a scaling factor is used for adapting the tunable passive elements (col. 2, lines 30-45).

Kakuishi further teaches the impedance Z obtained by viewing the two-wire line depends on the length and type of cable, a plurality of impedance elements are selectively used. a first tunable resistor in parallel with a series connection of a second tunable resistor and a tunable capacitor and in parallel with a fixed value resistor in the transmission paths of the hybrid (see Fig. 10; col. 9, lines 9-31) The most typical impedance is equal to  $Z'/2$ , in which  $Z'$  is a standard terminating impedance of a system (col. 2, line 48 – col. 3, line 38) in order provide a simple and less expensive hybrid circuit (col. 4, line 1-2).

Regarding **claim 13**, Kakuishi further teaches the hybrid comprises a current to voltage converter (99, Fig. 4), the feedback impedance of which being adapted so as to be equal to the tunable balance impedance (90).



***Response to Arguments***

7. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground of rejection.

***Conclusion***

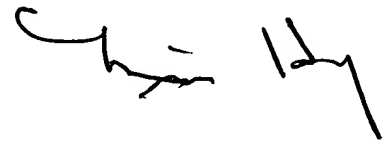
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.



cpt CPJ  
January 26, 2004

MIN SUN OH HARVEY  
PRIMARY EXAMINER